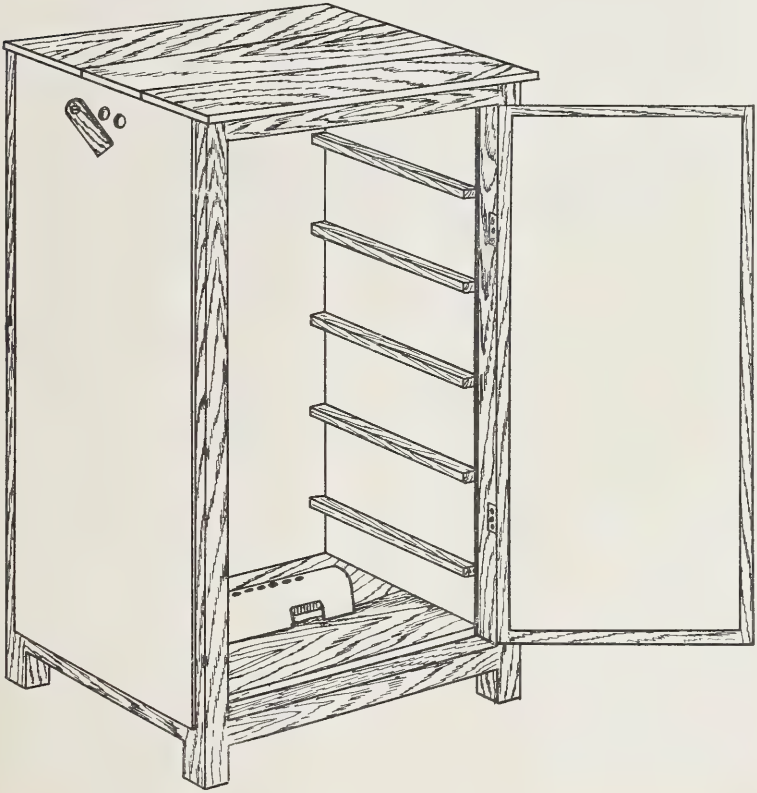
A DRYING CABINET FOR THE HERBARIUM.

By G. G. Smith.

Drying plants for herbarium purposes is a slow and laborious process at the best of times, especially with succulents. To speed up my work in connection with the drying of the large number of Haworthias and other succulents I am handling, I designed and put into use a small artificially heated drying cabinet, the results of which are proving most satisfactory, not only in the time and labour saved, but also in the improved appearance of the dried material.



An important feature of this method of drying is that the plants do not become brittle, nor have they the withered appearance usually found in plants dried in the ordinary way, without artificial heat.

Owing to the fact that the air inside this cabinet is not mechanically circulated, a low temperature element is all that is necessary, and with the permanently open air-holes at the bottom of the cabinet and the controlled ones near the top, one is able to control the heat inside the cabinet, and there is no danger of overheating.

The best drying temperature is about 120° to 150° F., at about the middle of the cabinet, and while I have not fitted a thermometer to this cabinet, it would be quite a simple matter to do so.

The cabinet consists of a frame of 1½ inches by 1½ inches of well seasoned oregon pine or other suitable wood. This frame is covered with any suitable board (such as a compressed fibre board used in the ceiling of a house) on the inside and outside so as to form an air-space between the linings for insulation purposes. The width inside the inner linings which is the width inside the cabinet must be ½ inch more than the length of the drying presses that will be used in the cabinet, and the depth (from back to front) inside about 1 inch wider.

The bottom and top are closed in with timber about ½ inch thick and the height inside the cabinet should be about 40 inches. Along each side are fixed five evenly-spaced rails of 1¼ inches by ¾ inch of suitable wood for carrying the drying presses.

The door frame is made of 1½ inches by ¾ inch oregon pine with an intermediate horizontal rail and is also covered on both sides to form an air space.

The heating element can be easily made up by any electrical engineering firm, and should be of a type where the resistance wires rest on top of the porcelain so as not to throw any heat in a downward direction. It is advisable to have the resistance wires longer than necessary to give a low temperature, which temperature can then be raised as desired by the shortening of the resistance wires. The element must be securely fixed to the bottom of the cabinet with a space of at least 1 inch between the inside bottom of the cabinet and the under side of the element porcelain. The bottom board has about eight ½-inch holes in a row immediately under the element so that air drawn in here must travel past the element.

The element is covered with a sheet metal hood to prevent the direct heat from the element impinging on the underside of the lower drying press. This hood is best made in the form of an inverted L, with lugs on the lower end for screwing on to the bottom board of the cabinet. The space between the top of the hood and the element must be at least

1½ inches, and the top or horizontal portion of the hood about 6 inches wide, with the open side towards the back of the cabinet.

Near the top of one of the sides of the cabinet two ¾-inch holes at about 1¼ inches centres are drilled through the inner and outer lining and a sleeve fitted to each hole so as to seal off the air space between the linings. The sleeves can be made of thick paper, glued to form a cylinder long enough to pass through the two linings, and may be glued in position with the outer ends flush with the outside of the cabinet. These holes are covered by a board about 5 inches long by 1¾ inches wide and screwed near one end to hinge up and down and thus act as a damper for controlling the flow of air through the cabinet.

In operation the presses are placed in the cabinet, the lowest one as far back as possible, the next one as far forward as possible so as to be up against the door when closed. This arrangement of the presses enables the hot air to circulate along the under side of each press. It is only natural that the press nearest the element will receive more heat than the others, and it is therefore advisable if more than one press is being used, to change their respective positions in the racks, and even to turn them over occasionally.

For higher temperatures in the cabinet, the damper must be almost closed and opened up for lower temperatures. The cabinet will also be found very useful for drying the papers. For this purpose they may be loosely arranged on one half of a drying press placed towards the top of the cabinet.